Amendments to the Claims

This listing of claims will replace all previous listings of claims on record.

Listing of Claims:

1. (currently amended) An apparatus for processing N number of input signals having a common frequency, said apparatus comprising:

at least N-1 number of serrodyne modulators for modulating N-1 of said N number of input signals into N-1 number of modulated signals;

a combiner for combining said modulated signals along with one non-modulated signal into an aggregate signal;

at least N-1 number of circulators for receiving at least part of said aggregate signal;

N-1 number of demodulators for demodulating said aggregate signal, each said demodulator corresponding to one of said modulators; and

N number of duplexer filters each corresponding to one of said N number of input signals;

wherein said circulators, said demodulators, and said duplexer filters, are arranged in series so as to pass each of N number of demodulated portions of said aggregate signal to a single Radio Frequency (RF) output and each of said demodulated portions being substantially identical to one of said N number of input signals.

2. (currently amended) The apparatus as claimed in Claim 1 wherein each duplexer filter passes its corresponding signal and reflects remaining portions of said aggregate signal and wherein remaining portions of said aggregate signal pass serially through said circulators and said demodulators beginning with a first one of said circulators and ending with a last one of said demodulators.

3. (original) The apparatus as claimed in Claim 2 wherein said first one of said circulators is coupled to one of said duplexer filters arranged to pass said one non-modulated signal.

4. (previously presented) The apparatus as claimed in Claim 3 wherein a length of RF cabling is placed between said combiner and said first one of said circulators.

5. (previously presented) The apparatus as claimed in Claim 4 wherein said length of RF cabling spans at least a portion of an antenna structure.

6. (previously presented) The apparatus as claimed in Claim 5, further including a plurality of amplifiers each located such that said input signals pass through a respective one of said plurality of amplifiers prior to passing through said at least N-1 number of serrodyne modulators.

7. (original) The apparatus as claimed in Claim 6 wherein said input signals are forward link transmissions and said plurality of amplifiers are high power amplifiers.

8. (original)The apparatus as claimed in Claim 6 wherein said input signals are reverse link transmissions and said plurality of amplifiers are low power preamplifiers.

9. (previously presented) The apparatus as claimed in Claim 5 wherein said input signals are forward link transmissions and said apparatus further includes a single high power amplifier for amplifying said aggregate signal, said high power amplifier located between said combiner and said length of RF cabling.

10. (previously presented) The apparatus as claimed in Claims 6, 7, or 9 wherein said serrodyne modulators are low loss, high power RF frequency translators.

11. (previously presented) The apparatus as claimed in Claims 6, 7, or 9 wherein said serrodyne modulators operate via a modulation scheme using multi-bit Serrodynes.

12. (currently amended) A method for processing N number of input signals having a common frequency, said method comprising:

obtaining N number of input signals having a common frequency;

modulating N-1 number of said input signals via a serrodyne modulation scheme;

combining said input signals after modulation to form an aggregate Radio Frequency (RF) signal;

transmitting said aggregate signal across a length of RF cabling; and

demodulating and filtering said aggregate signal through a series of circulators, duplexers, and demodulators such that said aggregate signal is separated into constituent signals each corresponding to each one of said input signals, wherein each duplexer has a pass band equal to one of said N number of input signals, and wherein remaining portions of said aggregate signal which do not pass through said pass band are reflected back to a circulator which then forwards said remaining portions to the next demodulator in series.

13. (original) The method as claimed in Claim 12, further including between said obtaining step and said modulating step, amplifying said input signal via a plurality of amplifiers.

14. (original) The method as claimed in Claim 13 wherein said input signals are forward link transmissions and said plurality of amplifiers are high power amplifiers.

15. (original)The method as claimed in Claim 13 wherein said input signals are reverse link transmissions and said plurality of amplifiers are low power preamplifiers.

16. (original) The method as claimed in Claim 12 wherein said input signals are forward link transmissions and said method further includes between said combining step and said transmitting step, amplifying said aggregate signal via a single high power amplifier.

17. (previously presented) The method as claimed in Claims 12, 14, or 16 wherein said modulation scheme uses low loss, high power RF frequency translators.

18. (previously presented) The method as claimed in Claims 12, 14, or 16 wherein said serrodyne modulation scheme uses multi-bit Serrodynes.

19. (currently amended) An apparatus for processing N number of modulated, combined, and amplified input signals having a common frequency, said apparatus comprising:

a demodulator for demodulating an amplified aggregate signal ~~consisting of~~ comprising said input signals, said demodulator including

a least N-1 number of circulators for receiving at least part of said aggregate signal;

N-1 number of serrodyne demodulators for demodulating said aggregate signal; and

N number of duplexer filters each corresponding to one of said N number of input signals;

wherein said circulators, said demodulators, and said duplexer filters are arranged in series so as to pass each of N number of demodulated portions of said aggregate signal to a single Radio Frequency (RF) output, each of said demodulated portions being substantially identical to one of said N number of input signals.